U.S. CIRCUIT COURT. DIST. OF CONNECTICUT.

Nat. Phono. Co.) No. 1076
vs.)
Amer. Graphophone Co.)

Nat. Phono. Co.) No. 1103
vs.)
Amer. Graph. Co.)

FINAL HEARING ON THE MERITS -Copy of
135 F.R. 809 March 17, 1905
(Platt, District Judge)

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United States Circuit Court
District of Connecticut.

(135 F.R.809,
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National Phonograph Company vs. American Graphophone Company	No.1076
National Phonograph Company vs. American Graphophone Company	No. 1103

Final Hearing on the Merits.

Platt, District Judge.

The two patents in suit relate to processes for duplicating phonograph records. The title to them is in the complainant, and it is alleged that they are infringed by the defendant.

In Case 1076 the patent in suit is No.667,662. This was granted February 5, 1901, but the application therefor was filed May 8,1900. In case 1103 the patent in suit is No.713,209. This was granted November 11,1902, but the application therefor was filed March 5,1898. It will be seen that the later patent relates to the earlier application.

The alleged infringement arises in both cases from the use by defendant of the same process of manufacture. The issues in each case are practically the same, and the two patents are so closely related, that our bur-

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dens will be lessened by considering them together, and when they enter the art to treat the earlier application as the first approach.

It is claimed by complainant that the earlier application resulting in patent in suit 1103 relates to a broader matter than the later application relating in patent in suit 1076. In short, that the "hollow cylindrical phonogram" may, under the process shown in patent in suit 1103, be formed by casting, dipping or expanding, while under patent in suit 1076 it must be formed by casting, one being the genus, the other the species, - but this is parenthetical.

It is believed that the most searching analysis will fail to discover any defence which has been neglected by defendant's counsel. The cases undoubtedly invited such treatment, but the Court is content to merely suggest some of the considerations which seem to warrant the conclusions finally reached.

And now let us step, as best we can, into the patentee's shoes, and find whether in the particular branch of the art at which he aimed when he sought these patents, he did, by the exercise of inventive genius, add anything to the then existing common stock of knowledge.

The graphophonic art may be said to have fairly begun with the invention of Bell and Taintor, Letters Patent No.341,214, dated May 4,1886. This taught the public how to produce the commercial and transferable sound record. It led at once to an anxious search for a mold and material and method for producing a large quantity of satisfactory duplicate records of unvarying and excellent quality. On the same date Tainter told how records could be duplicated by so using plumbago as to make an electr-plated matrix and then copying the master record by mechan-

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ism. The trouble with mechanical duplication, however, is, that after a few copies have been produced the master record becomes so worn that later duplicates are imperfect, and it was still, therefore, very important to find a way of making an unlimited number of accurate duplicates in a mold.

To cast divers kind of materials in molds was a long understood practice, and it was obvious that if the ancient art of casting could be made serviceable in the matter of producing good records, the ideal method would be reached. In using molds, when the article to be produced was spherical, it is evident that the mold must be divided; but when the article is not spherical, and if the molten material is of such a character that upon cooling it contracts, then a continuous mold can be used. It will be conceded, I think, that casting waxlike materials in continuous molds to obtain blanks which after shrinking could be withdrawn lengthwise, was not a very difficult matter and was thoroughly developed long before either patent in suit.

Such was the state of affairs when the search for the "ideal" in the matter of duplicating sound records was taken up.

Passing by some slight suggestions which can be found in English and American patents, it is well to come at once to Mr. Edison's patent No. 484,582, dated October 18, 1892, generally known as the "split mold" patent. This confessedly discloses everything which the patent in suit for a casting process discloses, except the longitudinal extraction from a continuous mold. At the date when the application for the '92 patent was filed, January 5, 1888, it may well be that the waxlike substance

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with suitable contractile power had not been found; but on October 18, 1892, soap compositions, with low melting point and high coefficient of expansion and contraction, had become well known and were in general use. Mr. Edison was after a practical process, and confessedly the use of a split mold was not practical, because of the fins or burrs made by the seams; and it is equally clear, since the soapy combination then known would contract sufficiently in cooling, that that continuous mold was a practical thing, except for other troubles.

Lioret's U.S. patent No.528,273, October 30, 1894, and Young's British patent No.1478, January 23, 1894, are of importance, because they deal with the duplication of sound records, rather than blanks.

Lioret softens a celluloid ring by plunging it in hot water, then forces a mandrel into the ring large enough to push the softened celluloid into all the cavities of the mold, then by plunging the whole into cold water permits the celluloid to harden and at the same time to contract enough so that it can be easily withdrawn from the mold by unscrewing. He also shows that very slight contraction permits the unscrewing.

Young, using a continuous mold and a thin strip of celluloid, collapsed the strip after impressing it by expanding and then withdrew it longitudinally. By using a material then well known in the art, with a higher coefficient of expansion and contraction, it would seem that the necessity for collapsing would have been obviated.

Appelt, No.303,976, describes the casting of rollers in a cylindrical mold and allowing the material to congeal, so that the roller will easily come out of the tube in consequence of the shrinkage "which all com-

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pounds composed principally of gelatine and of glycerine undergo."

Day No.563,572, describes the casting of a printer's roller and by the introduction of cool air causing it to shrink at the inner surface and withdraw itself from from the outer tube, when it may be removed from the tube.

It is true that these are in another art, but they disclose quite as plainly as any of the former citations that if a proper material is provided, it is easy to cool it to the point where the inevitable contraction permits its longitudinal extraction from a continuous mold.

Long prior to the patents in suit, it was known that certain waxlike materials had the property of contracting when cooled. Mr. Edison's patent No .382,417, dated May 8, 1888, specifically refers to that quality. He was then engaged in showing how,by the use of an exceedingly smooth die, a satisfactory blank could be produced, upon which engraving could proceed at once without cutting. There is no way of extracting the finished blank from the solid die,which he offers as one form, except to take advantage of that quality of contraction to which he referred in connection with the effect of cooling upon the wax in the mold.

To understand the entire matter, it is necessary to know the distinction between blanks and sound records. Blanks are made by a process which only differs from that used in making records in one respect. The blank must come out of the mold with a smooth surface upon which to engrave the tiny indentations which assist in repeating vocal or instrumental sounds to the ear, but the record must come out of the mold with those tiny indentations al-

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ready impressed thereon. The one process would, therefore, seem not only to be analogous to the other, but the two would seem to be so interwoven as to be really a part of the same art. Except that for the one difference explained, every step in each process is the same; the molds, the material, and the product, the same, and in each case the product is intended to take, and does take, an exact impression of the mold in which it is formed.

Long prior to the application of March 5, 1898, Mr. Edison had put the casting process aside and was using the expanding process, throwing now and then, it is true, a longing glance at his "ideal method"; but it requires a considerable stretch of the imagination to accept the proposition that with this application he had suddenly returned to his first love. It is believed that such return is shown in the second application, for that process is plainly a casting process. It makes no difference whether one pours the mixture into the mold from the top or draws it up from the bottom. As a characterization of a process the words casting and dipping cannot be distinguished.

No.1103

Into an art then, the condition of which has been somewhat meagrely set forth, comes the patentee with his application of March 5,1898,which after long hindrance emerged from the Patent Office as No.713,209 dated Nov. 11,1902.

Claims 2 and 3 are in issue:

> "2.The method of producing hollow cylindrical phonograms,which consists in obtaining a mold having a reverse phonogram-record on the inner wall of a cylindrical opening,forming a hollow cylindrical plastic phonogram within said mold, releasing the phonogram from the mold by a radial contraction of the phonogram sufficient to entirely clear the suffaces, and

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removing the phonogram from the mold by direct longitudinal movement.

"3. The method of producing hollow cylindrical phonograms which consists in obtaining a mold having a reverse phonogram record on the inner wall of the cylindrical opening, forming a hollow cylindrical plastic phonogram within said mold, releasing the phonogram from the mold by a reduction in temperature sufficient to entirely clear the surfaces, and removing the phonogram from the mold by direct longitudinal movement."

I can find nothing in the specifications which even hints at the soundness of the proposition, that the words found in claims 2 and 3,"forming a hollow cylindrical plastic phonogram", covers the casting process. At the outset, it is admitted that it cannot be found in any other of the eighteen claims.

Then going to the specification, the blanks to be used are referred to on the second page, beginning at line 8. They must be thick enough to maintain their shape; the diameter must be, at normal temperature,slightly less then the bore of the mold, so that it can be inserted.

At line 18 neging this significant language:

"After the blank has been thus placed within the matrix or mold, both the matrix and the blank contained therein are, or the blank alone , is brought to a higher temperature, whereby the blank will expand and will be brought into intimate contact with the record surface of the matrix or mold, whereby the negative record thereof will be impressed with absolute accuracy upon the surface of the blank."

Beginning at line 43, he states that he prefers to introduce a tapering mandrel within the blank after the blank has been placed in the mold "and heat applied to the blank".

At line 84 he informs us that the degree of heat necessary to properly expand the blank will depend largely upon the material used and upon the closeness of fit of the blank "when inserted" within the mold.

From lines 124 and on, he described the specific

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blank as "preferably provided with a tapered bore" and as "turned down so that it may be inserted" within the mold "with a close fit" and as of a "sufficient thickness to maintain its shape."

The history of the application in the Patent Office also leads to the same conclusion.

It strikes me as impossible to construe this patent as indicating anything except the expanding process, and if this be so, it is conceded that defendant's casting process does not infringe. And this is the alleged broad patent under which the complainant seeks to dominate the art of producing molded duplicates, no matter how they are produced.

No. 1076.

After the Patent Office had devoted nearly two years of labor toward the parturition of the alleged invention which has just been discussed, another application was filed May 8, 1900, upon which Letters Patent No. 667,662 were issued, dated February 5, 1901.

And claims 1, 2, 4 and 5 are in issue:

"1. The process of duplicating cylindrical phonographic records, which consists in first making an original record with a spiral record-groove of greater pitch than desired on the duplicate to be produced, then in making a hollow cylindrical matrix or mold from said original record, carrying the record in negative on its bore, and in finally making duplicate records from the matrix or mold by introducing therein and engaging therewith material maintained in an abnormally high temperature, whereby the cooling of such duplicate will contract the pitch of the record groove, as and for the purposes set forth.

"2. The process of duplicating phonographic records, which consists in securing a mold containing the record in negative on its bore, in introducing a molten material in the mold to receive a surface impression from such record, in allowing the molten material to set, in contracting the said material, and in separating the contracted molded material by a longitudinal movement, substantially as set forth.

"4. The process of duplicating cylindrical phonograph records, which consists in forming a cylindrical

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mold with a record in negative on its bore, in introducing a molten material in the mold to form a cylindrical duplicate, in allowing the duplicate to set, in contracting the duplicate, and in removing the contracted duplicates by a direct longitudinal movement, substantially as set forth.

"5. The process of duplicating cylindrical phonograph-records, which consists in forming a cylindrical mold having the record in negative on its bore, in introducing molten material in the mold around a core, whereby a hollow cylindrical duplicate will be formed, in allowing the molten material to set, in contracting the molten material, and in withdrawing the contracted material from the mold by a direct longitudinal movement, substantially as set forth."

To introduce molten material into a mold; to allow it to congeal therein, thereby taking the impression of the inner surface of the mold; and to then remove it from the mold, is the ancient art of casting, and is the foundation of the patent in suit. If there is any invention here, it must be contained within a very narrow scope.

My view of the art which includes therein the casting of cylinder blanks, narrows the matter still more.

For years it has been common to cast the same wax-like material in continuous cylindrical molds, and, after it had been cooled, and thereby sufficiently contracted to withdraw the product longitudinally from the mold.

The complainant is forced by the admitted facts of the prior art to contend, that in one respect, at least, an inventive glimmer did shine out, and what will be now discussed, applies to both patents in suit.

The argument is, that it is unimportant how much was known about pulling other products straight out of a continuous mold, because it remains true, that no one had taught us how to remove longitudinally, a phonogram covered with such infinitesimal number of exceedingly minute convolutions. This is the glorious contribution to the art for which Mr. Edison receives such adulation from expert and counsel. It is suspected that their enthusiasm causes them to lose sight of the admitted fact,

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that very little radial contraction is required to produce a sufficient separation to permit the straight pull. The necessary contraction is about as infinitesimal as the marks on the mold, and it would seem that a contraction sufficient to remove any casting from any continuous mold, would serve to get this casting out of this mold in the way suggested.

Air bubbles in the melted material drove Mr. Edison away from casting for many years, but in this patent he reverts to casting, and avoids air bubbles by introducing the melted wax from the bottom upwardly into a very cold mold, so as to produce an almost instantaneous chilling of the wax. Defendant undertakes to get rid of the air bubbles by superheating the melted wax after it has been poured into the mold at the top, and then proceeds to suddenly chill it down from its high temperature. This is done under Letters Patent Nos.682,991 and 682,992, September 17th, 1901. Mr. MacDonald discovered that he could do this when molding blanks, in 1896. The superheating and sudden chilling produced a very hard surface, not suitable for blanks but excellent for duplicate records, and this knowledge led directly to the defendant's patents.

It is important that the patent in suit was not interposed in interference by the Patent Office. The presumption of novelty in defendant's patents is exceptionally forceful when we consider that men so painstaking as Mr. Edison and so vigorous as his counsel must have been in full possession of all the facts and quite able to impress their views upon the Office. Mr. Edison eliminates air bubbles by one process, and the defendant eliminates them by another and distinctively novel process.

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The lions in the path at the time of the split mold patent are all, except one, disposed of. The minute indentations were at one time too deep, and for a variety of reasons prevented a practical casting process, but this trouble vanished when Edison invented the curved edge recorder, which avoids the deep cutting into the record which had been necessary before that time. The defendant has the benefit of the curved edge recorder patent.

If you have a material which, after cooling, contracts radially and longitudinally, thus becoming detached and separated from the mold without breaking, it is a simple and obvious act to lift it directly and safely out. Before this can be done, however, you must have the right material, and the indentations imprinted by the mold must be of a certain kind. So it follows that if after lifting it out, the product is a commercial failure, the fault must be either in the material or in the impressions, and it appears that these difficulties were obviated by other brains than the patentee's.

Only a word about claim 1. It contains a self-adjusting device which has the peculiar faculty of shifting the position, so as to catch an unwary defendant in its clutches, no matter how much pains he may take to escape. Whatever pitch one desires on the duplicate will, of its own motion, cause his destruction. The shrinkage rule removes any lingering suggestion of novelty in the claim.

The foregoing is an imperfect sketch, thrown together, in the midst of divers harrassing problems, raised by a variety of other situations in other matters; but it is believed that it contains at least a faint suggestion of the reasons which have forced me to my conclusions. A considerable portion of the mine remains, from which much

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value can be extracted to aid the defendant. It has been explored, but I refrain from further exploitation.

Let the bills in both cases be dismissed.

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